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ABSTRACT

This document, which is intended for use by community and junior colleges throughout Mississippi, contains curriculum frameworks for the course sequences in the brick, block, and stonemasonry program. Presented in the introductory section are a description of the program and suggested course sequence. Section I lists baseline competencies for the brick, block, and stonemasonry program, and section II consists of outlines for each of the following courses in the brick, block, and stonemasonry sequence: brick and block laying; masonry construction; masonry math, estimating, and blueprint reading; tools, equipment, and safety; advanced block laying; advanced bricklaying; chimney and fireplace construction; steps, arches, and brick floors; special problem in brick, block, and stonemasonry; and work-based learning in brick, block, and stonemasonry. Each course outline contains some/all of the following: course name and abbreviation; course classification; course description; prerequisites; and competencies and suggested objectives. Recommended tools and equipment are listed in section III. Appended are lists of related academic topics and workplace skills for the 21st century and student competency profiles for both courses. (MN)

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Mississippi Curriculum Framework for Brick, Block, and Stonemasonry

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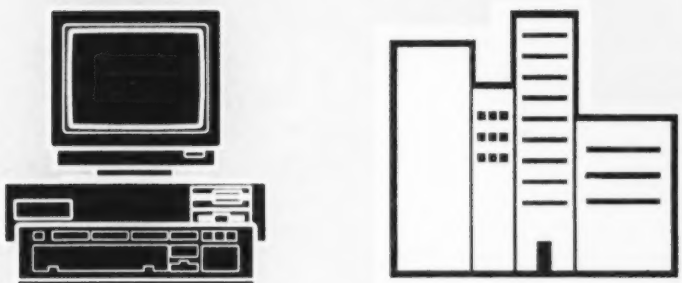

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1996

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July 30, 1996

MISSISSIPPI

CURRICULUM FRAMEWORK

FOR

BRICK, BLOCK, AND STONEMASONRY

(PROGRAM CIP: 46.0101 - MASON AND TILE SETTER)

POSTSECONDARY PROGRAMS 1996

July 30, 1996

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FOREWORD

In order to survive in today's global economy, businesses and industries have had to adopt new practices and procedures. Total quality management, statistical process control, participatory management, and other concepts of high performance work organizations are practices by which successful companies survive. Employers now expect their employees to be able to read, write, and communicate effectively; solve problems and make decisions; and interact with the technologies that are prevalent in today's workplace. Vocational-technical education programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact on local vocational-technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U. S. Departments of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses which focus on the development of occupational competencies. Each vocational-technical course in this sequence has been written using a common format which includes the following components:

- Course Name - A common name that will be used by all community/junior colleges in reporting students.

- Course Abbreviation - A common abbreviation that will be used by all community/junior colleges in reporting students.

- Classification - Courses may be classified as:
  - Vocational-technical core - A required vocational-technical course for all students.
  - Vocational-technical elective - An elective vocational-technical course.
  - Related academic course - An academic course which provides academic skills and knowledge directly related to the program area.
  - Academic core - An academic course which is required as part of the requirements for an Associate degree.

- Description - A short narrative which includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites - A listing of any prerequisite courses that must be taken prior to or on enrollment in the course.

- Competencies and Suggested Objectives - A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent of the time allocated to each course. For example, in a four semester hour course consisting of 30 hours lecture and 120 hours of laboratory activities, approximately 22 hours of lecture and 90 hours of lab should be taken by the competencies and suggested objectives identified in the course framework. The remaining 25 percent of each course should be developed at the local district level and may reflect:
  - Additional competencies and objectives within the course related to topics not found in the State framework, including activities related to specific needs of industries in the community college district.
  - Activities which develop a higher level of mastery on the existing competencies and suggested objectives.
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/revised.
  - Activities which implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational-technical skills and coursework, school-to-career transition activities, and articulation of secondary and postsecondary vocational-technical programs.
  - Individualized learning activities, including worksite learning activities, to better prepare individuals in the courses for their chosen occupational area.

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15 semester credit hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
  - 3 semester credit hours — Math/Science Elective
  - 3 semester credit hours — Written Communications Elective
  - 3 semester credit hours — Oral Communications Elective
  - 3 semester credit hours — Humanities/Fine Arts Elective
  - 3 semester credit hours — Social/Behavioral Science Elective

  It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and vocational-technical courses each semester. Each community/junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:
  - students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and
  - students who cannot demonstrate mastery of this content will be given the opportunity to do so.

- The roles of the Baseline Competencies are to:
  - Assist community/junior college personnel in developing articulation agreements with high schools, and
  - Ensure that all community and junior college courses provide a higher level of instruction than their secondary counterparts

- The Baseline Competencies may be taught as special "Introduction" courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the "Introduction" courses or may offer the competencies through special projects or individualized instruction methods.

- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

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July 30, 1996

BRICK, BLOCK, AND STONEMASONRY

PROGRAM DESCRIPTION

Brick, Block, and Stonemasonry is an instructional program that prepares individuals to lay bricks and/or blocks. Included is instruction in laying out and/or spacing bonds; determining vertical and horizontal alignment of courses using gauges, plumb-bobs, and levels; and cutting, notching, and shaping blocks, bricks, and stone to construct or repair walls, partitions, arches, and fireplaces. A Certificate of Brick, Block, and Stonemasonry may be awarded to a student who successfully completes the 32 semester credit hours of required courses.

BRICK, BLOCK, AND STONEMASONRY

SUGGESTED COURSE SEQUENCE*

Baseline Competencies For Brick, Block, And Stonemasonry**

FIRST YEAR

5 sch	Brick and Block Laying (BBV 1115)	5 sch	Advanced Block Laying (BBV 1425)
5 sch	Masonry Construction (BBV 1215)	5 sch	Advanced Bricklaying (BBV 1525)
3 sch	Masonry Math, Estimating, and Blueprint Reading (BBV 1223)	6 sch	Electives*
3 sch	Tools, Equipment, and Safety (BBV 1313)	16 sch	
16 sch			

* Students who lack entry level skills in math, English, science, etc., will be provided related studies.

** Baseline competencies are taken from the high school Building Trades program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

* APPROVED ELECTIVES
Chimney and Fireplace Construction (BBV 1623)
Steps, Arches, and Brick Floor Paving (BBV 1723)
Special Problem in Brick, Block, and Stonemasonry [BBV 191(1-3)]
Work-Based Learning in Brick, Block, and Stonemasonry [BBV 192(1-6)]

SECTION I:

BASELINE COMPETENCIES

FOR

BRICK, BLOCK, AND STONEMASONRY

BASELINE COMPETENCIES FOR BRICK, BLOCK, AND STONEMASONRY

The following competencies and suggested objectives are taken from the publication *Mississippi Curriculum Framework for Building Trades*. These competencies and objectives represent the baseline which was used to develop the community/junior college Brick, Block, and Stonemasonry courses. Students enrolled in postsecondary courses should either (1) have documented mastery of these competencies, or (2) be provided with these competencies before studying the advanced competencies in the Brick, Block, and Stonemasonry program.

Baseline competencies may be integrated into existing courses in the curriculum or taught as special "Introduction" courses. The "Introduction" courses may be taught for up to six semester hours of institutional credit and may be divided into two courses. If the Baseline Competencies are to be taught as "Introduction" courses, each course should be at least 3 credit hours. The following course number(s) and description should be used:

Course Name(s): Introduction to Brick, Block, and Stonemasonry, Introduction to Brick, Block, and Stonemasonry I, or Introduction to Brick, Block, and Stonemasonry II

Course Abbreviation(s): BBV 100(3-6), BBV 1013, BBV 1023

Classification: Vocational-Technical Core

Description: These courses contain the baseline competencies and suggested objectives from the high school Building Trades curriculum which directly relate to the community college Brick, Block, and Stonemasonry program. The courses are designed for students entering the community college who have had no previous training or documented experience in the field. (3-6 semester hours based upon existing skills for each student. May be divided into 2 courses for a maximum total of 6 hours of institutional credit.)

Competencies and Suggested Objectives:

1. Explain the career opportunities associated with building trades.
   a. Describe earnings, educational requirements, career ladder, and trade organizations associated with each trade.
   b. Demonstrate personality traits to apply when serving the public.
   c. Demonstrate desirable personality traits to apply when communicating with employees, supervisors, and other employees.
   d. Demonstrate desirable characteristics of the work ethic to apply in building trades.

Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

2. Describe vocational student organizations associated with building trades.
   a. Identify the activity programs of Vocational Industrial Clubs of America (VICA), including activities in leadership, membership, degrees, and contests.

   Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
3. Demonstrate job seeking skills to become employed in the building trades.
   a. Prepare a resume containing essential information.
   b. Complete a job application form.
   c. Describe procedures for a job interview.
   d. Demonstrate the role of an applicant in job interview.

   Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
4. Explain personal and general safety rules for working in building trades.
   a. Demonstrate personal safety rules for working in a shop/lab and industry.
   b. Demonstrate general workplace safety rules.
   c. Demonstrate procedures for safely handling heavy objects.
   d. Demonstrate safety practices for using climbing devices.
   e. Describe state eye safety law, including appropriate times for wearing safety glasses.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
5. Apply workplace environmental safety procedures.
   a. Describe the safe use of fire extinguishers for different classes of fires.
   b. Identify standard industry Safety Color Code.
   c. Describe factors to consider in storing and/or disposing of hazardous materials.
   d. Identify hazardous materials that may be found on a job site and procedures for handling, avoiding, or removing them according to Occupational Safety and Health Administration (OSHA) regulations.
   e. Review a Materials Safety Data Sheet (MSDS).

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
6. Apply measurement to the building trades.
   a. Identify measuring tools used in the building trades.
   b. Read measuring tools to 1/16th inch.
   c. Apply basic mathematics to building trades.

   Related Academic Topics (See Appendix A): C1, C2, C3, C6, M1, M4, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
7. Apply blueprint reading to the building trades.
   a. Identify terms and definitions used in reading blueprints and working drawings.

b. Identify the basic components of a blueprint.
c. Identify the lines used on blueprints.
d. Prepare a building layout.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M2, M3, M7, S8

Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

8. Utilize hand tools in the building trades.
   a. Identify hand tools used in the building trades.
   b. Demonstrate the maintenance of hand tools used in the building trades.
   c. Demonstrate the safe use of hand tools used in the building trades.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7, S7, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
9. Utilize power tools in the building trades.
   a. Identify power tools used in the building trades.
   b. Demonstrate the maintenance of power tools used in the building trades.
   c. Demonstrate the safe use of power tools used in the building trades.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
10. Utilize stationary equipment in the building trades.
    a. Identify stationary equipment used in the building trades.
    b. Demonstrate the maintenance of stationary equipment used in the building trades.
    c. Demonstrate the safe use of stationary equipment used in the building trades.
    d. Demonstrate the use of computer equipment and software for blueprint reading and estimation in Building Trades.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7, S7, S8

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
11. Explain terms and rules for safety in masonry.
    a. Identify terms related to masonry trades.
    b. Describe rules for safety in masonry trades.

    Related Academic Topics (See Appendix A): C1, C3, C5, C6, S8

    Workplace Skills (See Appendix B): WP2, WP6
12. Apply procedures for masonry work.
    a. Select tools and materials for a specific task.
    b. Demonstrate the steps in manual mixing of mortar.
    c. Perform trowel spreading and buttering.
    d. Lay a four-inch brick lead.
    e. Lay a four-inch return corner lead.
    f. Lay out, set up batter boards, form, pour, and finish a reinforced concrete slab.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M4, M5, M7, S6, S8
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

13. Explain the career opportunities associated with building trades.
    a. Describe earnings, educational requirements, career ladder, and trade organizations associated with each trade.
    b. Demonstrate personality traits to apply when serving the public.
    c. Demonstrate desirable personality traits to apply when communicating with employees, supervisors, and other employees.
    d. Demonstrate desirable characteristics of the work ethic to apply in building trades.

    Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
14. Describe vocational student organizations associated with building trades.
    a. Identify the activity programs of Vocational Industrial Clubs of America (VICA), including activities in leadership, membership, degrees, and contests.

    Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
15. Demonstrate job seeking skills to become employed in the building trades.
    a. Prepare a resume containing essential information.
    b. Complete a job application form.
    c. Describe procedures for a job interview.
    d. Demonstrate the role of an applicant in job interview.

    Related Academic Topics (See Appendix A): C1, C2, C3, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
16. Explain personal and general safety rules for working in building trades.
    a. Demonstrate personal safety rules for working in a shop/lab and industry.
    b. Demonstrate general workplace safety rules.
    c. Demonstrate procedures for safely handling heavy objects.
    d. Demonstrate safety practices for using climbing devices.
    e. Describe state eye safety law, including appropriate times for wearing safety glasses.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
17. Apply workplace environmental safety procedures.
    a. Describe the safe use of fire extinguishers for different classes of fires.
    b. Identify standard industry Safety Color Code.
    c. Describe factors to consider in storing and/or disposing of hazardous materials.
    d. Identify hazardous materials that may be found on a job site and procedures for handling, avoiding, or removing them according to Occupational Safety and Health Administration (OSHA) regulations.
    e. Review a Materials Safety Data Sheet (MSDS).

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, S5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

18. Explain terms and materials related to masonry trades.
    a. Define terms related to masonry trades.
    b. Demonstrate rules of safety in masonry trades.
    c. Perform safety and mechanical checks on a mechanical mixer.
    d. Identify characteristics of good bricklaying performance.
    e. Identify types of brick.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M3, M4, M6, M7, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
19. Perform procedures used in masonry trades.
    a. Measure, mark, and cut brick and block to specifications.
    b. Lay out a brick and/or block wall using the dry bond method.
    c. Mix a batch of mortar using a mechanical mixer.
    d. Lay up a wall between established leads.
    e. Construct brick and/or block piers.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M3, M4, M6, M7, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

SECTION II:

CURRICULUM GUIDE

FOR

BRICK, BLOCK, AND STONEMASONRY

Course Name: Brick and Block Laying

Course Abbreviation: BBV 1115

Classification: Vocational-Technical Core

Description: This course is designed to give the student experience in laying brick and block. (5 sch: 1 hr. lecture, 8 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Explain procedures for layout and construction of a brick/block wall.
   a. Describe procedures to establish and build corner leads.
   b. Describe procedures to set line from corner leads.
   c. Describe procedures to set a trig.
   d. Describe procedures to lay brick/block to line.
   e. Describe procedures to set closures in masonry course.
   f. Describe procedures to strike mortar joints, both head and bed.
   g. Describe procedures to perform tuck pointing.
   h. Describe the cleaning processes for brick/block masonry and the safety practices.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Perform procedures for layout and construction of a brick/block wall.
   a. Demonstrate procedures to establish and build corner leads.
   b. Demonstrate procedures to set line form corner leads.
   c. Demonstrate procedures to set a trig.
   d. Demonstrate procedures to lay brick/block to line.
   e. Demonstrate procedures to set closures in masonry course.
   f. Demonstrate procedures to strike mortar joints, both head and bed.
   g. Demonstrate procedures to perform tuckpointing.
   h. Demonstrate the cleaning processes for brick/block masonry and the safety practices.

   Related Academic Topics (See Appendix A: C1, C2, C3, C4, C5, M1, M4, M5, M7, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Masonry Construction

Course Abbreviation: BBV 1215

Classification: Vocational-Technical Core

Description: This course is designed to give the student experience in various types of walls, finishing, and masonry construction techniques. (5 sch: 1 hr. lecture, 8 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Identify brick, block, and stone materials and their applications.
   a. Name the different types of brick, block, and stone.
   b. Label parts of a brick, block, and stone.
   c. Identify the bond positions as they appear in a wall.
   d. Describe types of stone and their applications.
   e. Mix mortar to specifications (hand and machine).
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, W4, W5, WP6
2. Plan and construct a concrete foundation.
   a. Estimate the materials needed for a concrete foundation.
   b. Prepare footing and construct forms needed for a concrete foundation.
   c. Install concrete reinforcement.
   d. Install vapor barrier.
   e. Pour concrete mixture into foundation forms.
   f. Finish concrete according to industry specifications.
   Related Academic Topics (See Appendix A): C1, C2, C3, C5, M1, M3, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
3. Lay out a brick wall to specifications.
   a. Set up the work area.
   b. Establish the building line.
   c. Dry bond the first course.
   d. Mark the bond.
   e. Lay a brick wall in mortar according to instructor's specifications.
   Related Academic Topics (See Appendix A): C1, C3, C4, C5, M1, M3, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
4. Lay out a block wall to specifications.
   a. Set up the work area.
   b. Establish the building line.
   c. Dry bond the first course.
   d. Mark the bond.

e. Lay a block wall in mortar according to instructor's specifications.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M3, M7
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

5. Plan and construct a reinforced wall.
   a. Distinguish between load bearing and non-load bearing walls.
   b. Select materials for a reinforced wall.
   c. Construct a reinforced masonry wall to instructor's specifications.
   d. Select and install flashing to specifications.
   e. Install a weep hole and describe its function.
   f. Install an expansion joint and describe its function.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M3, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Masonry Math, Estimating, and Blueprint Reading

Course Abbreviation: BBV 1223

Classification: Vocational-Technical Core

Description: This course is designed to give the student experience in calculations, estimating, and blueprint reading. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Demonstrate addition, substraction, division, and multiplication with whole numbers, fractions, and decimal for the masonry trade.
   a. Perform addition, subtraction, division, and multiplication with whole numbers, fractions, and decimals for masonry trade.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Describe the symbols and abbreviations used on blueprints for masonry.
   a. Read a floor plan.
   b. Read a foundation plan.
   c. Determine window and door schedules.
   d. Read detail, cross-section, and elevation of a blueprint.
   e. Calculate size according to scale from blueprints.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
3. Estimate materials for a masonry job using manual procedures and/or computer equipment with software.
   a. Estimate masonry materials using the square foot method for brick and block according to instructor's specifications.
   b. Use the mason's rule of thumb in estimating masonry materials for a specific job.
   c. Estimate concrete blocks for a specific job.
   d. Estimate bricks for a specific job.
   e. Estimate mortar for a specific job.
   f. Estimate sand for a specific job.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Tools, Equipment, and Safety

Course Abbreviation: BBV 1313

Classification: Vocational-Technical Core

Description: This course is designed to give the student experience in the use and care of tools and equipment along with the safety procedures used in the masonry trade. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Explain safe work practices on the masonry job.
   a. Describe practices associated with chemicals and other hazardous materials according to OSHA and EPA regulations (MSDS).
   b. Describe safe work procedures in construction of scaffolding, use of ladders, power trowel, power joint cutter, and use of materials handling equipment.
   c. Demonstrate safe use of masonry tools, including masonry saws, mortar mixer, and grinders.
   d. Describe personal safety clothing and equipment used in masonry trades.
   e. Demonstrate procedures for safely handling of heavy objects.
   f. Describe state eye safety law, including appropriate times for wearing safety glasses.
   g. Identify causes of electrical hazards.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Explain vocational student organizations and how they relate to and support the instructional program.
   a. Describe the activity programs of vocational student organizations and how they relate to and support the instructional program.
3. Demonstrate the ability to identify and use the tools and equipment.
   a. Match terms associated with hand tools to their correct definitions.
   b Distinguish between modular spacing rule and standard brick spacing rule.
   c. Identify basic tools and proper use.
   d. Identify and describe the correct way to hold a brick trowel.
   e. Measure, mark, and cut brick and block to specifications.
   f. List basic rules concerning care of the level.
   g. Use a framing square to lay out a wall corner to specifications.
   h. Describe the measuring instruments and guides used to lay out masonry work.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

4. Demonstrate the ability to care for the tools and equipment.
   a. Describe the accepted methods to care for tools and equipment.
   b. Clean tools and equipment after use.
   c. Store tools and equipment in accepted manner.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5

Course Name: Advanced Block Laying

Course Abbreviation: BBV 1425

Classification: Vocational-Technical Core

Description: This course is designed to give the student experience in laying block columns, piers, and various walls (5 sch: 1 hr. lecture, 8 hr. lab)

Prerequisites: Brick and Block Laying (BBV 1115)

Competencies and Suggested Objectives:

1. Explain procedures for layout and construction of block columns, piers, and various walls.
   a. Describe procedures to lay out and construct block columns to specifications.
   b. Describe procedures to lay a hollow block pier to specifications.
   c. Describe procedures to construct a block wall with pilasters to specifications.
   d. Describe procedures to construct a block chase wall to specifications.
   e. Describe procedures to construct a block cavity wall to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Lay out and construct columns, piers, and various walls.
   a. Construct block columns to specifications.
   b. Lay a hollow block pier to specifications.
   c. Construct a block wall with pilasters to specifications.
   d. Construct a block chase wall to specifications.
   e. Construct a block cavity wall to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Advanced Bricklaying

Course Abbreviation: BBV 1525

Classification: Vocational-Technical Core

Description: This course is designed to give the student advanced experience in brick columns, piers, and various walls. (5 sch: 1 hr. lecture, 8 hr. lab)

Prerequisites: Brick and Block Laying (BBV 1115)

Competencies and Suggested Objectives:

1. Explain procedures for layout and construction of columns, piers, and various walls.
   a. Describe procedures to lay out and construct brick columns to specifications.
   b. Describe procedures to lay a hollow brick pier to specifications.
   c. Describe procedures to construct a brick wall with pilasters to specifications.
   d. Describe procedures to construct a chase wall to specifications.
   e. Describe procedures to construct a cavity wall to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Lay out and construct columns, piers, and various walls.
   a. Construct brick columns to specifications.
   b. Lay a hollow brick pier to specifications.
   c. Construct a brick wall with pilasters to specifications.
   d. Construct a chase wall to specifications.
   e. Construct a cavity wall to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP5

Course Name: Chimney and Fireplace Construction

Course Abbreviation: BBV 1623

Classification: Vocational-Technical Elective

Description: The student will gain advanced experiences in layout and construction of chimneys and fireplaces. (3 sch: 1 hr. lecture, 4 hr. lab)

Prerequisites: Brick and Block Laying (BBV 1115)

Competencies and Suggested Objectives:

1. Describe procedures to lay out and construct fireplaces and chimneys.
   a. Describe procedures to construct fireplaces with mantel and hearth to specifications.
   b. Describe procedures to construct chimneys to specifications.
   c. Describe procedures to construct a heater flue to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Apply procedures to lay out and construct fireplaces and chimneys.
   a. Construct fireplaces with mantel and hearth to specifications.
   b. Construct a chimney to specifications.
   c. Construct a heater flue to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

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Course Name: Steps, Arches, and Brick Floors

Course Abbreviation: BBV 1723

Classification: Vocational-Technical Elective

Description: Students will gain advanced experiences In layout and construction of steps, arches, and brick floors. (3 sch: 1 hr. lecture, 4 hr. lab)

Prerequisites: Brick and Block Laying (BBV 1115)

Competencies and Suggested Objectives:

1. Explain procedures to lay out and construct steps, arches, and heater flues.
   a. Describe procedures to lay out and construct arches to specifications.
   b. Describe procedures to lay out and construct a floor section using paving brick.
   c. Describe procedures to lay out and build a set of steps to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6
2. Apply procedures to lay out and construct steps, arches, and heater flues.
   a. Lay out and construct arches to specifications.
   b. Lay out and construct a floor section using paving brick.
   c. Lay out and build a set of steps to specifications.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Special Problem in Brick, Block, and Stonemasonry

Course Abbreviation: BBV 191(1-3)

Classification: Vocational-Technical Elective

Description: A course to provide students with an opportunity to utilize skills and knowledge gained in other Brick, Block, and Stonemasonry courses. The instructor and student work closely together to select a topic and establish criteria for completion of the project. (1-3 sch: 2-6 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Prepare a written agreement.
   a. Compile a written training agreement in cooperation with the instructor and student which details work schedule and specific tasks/skills to be mastered in the program.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
2. Prepare a written report of activities.
   a. Compile a daily log of activities and tasks.
   b. Submit weekly reports to the instructor summarizing activities and tasks completed.
   c. Submit a final report of activities and experiences.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP6
3. Follow written guidelines for special problems.
   a. Complete all required activities in the training agreement.
   b. Adhere to all written and oral instructions for the special problem.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Work-Based Learning in Brick, Block, and Stonemasonry

Course Abbreviation: BBV 192(1-6)

Classification: Vocational-Technical Elective

Description: This course is a cooperative program between industry and education and is designed to integrate the student's technical studies with industrial experience. Variable credit is awarded on the basis of one semester hour per 45 industrial contact hours. (1-6 sch: 3-18 hr. externship)

Prerequisites: Second semester standing in Brick, Block, and Stonemasonry

Competencies and Suggested Objectives:

1. Apply technical skills needed to be a viable member of the work force.
   a. Prepare a description of technical skills to be developed in the work-based learning program.
   b. Develop technical skills needed to be a viable member of the work force.
   Related Academic Topics (See Appendix A): C5, C6
   Workplace Skills (See Appendix B): WP1
2. Apply skills developed in other program area courses.
   a. Perform skills developed in other program area courses in the work-based learning program.
   Related Academic Topics (See Appendix A): C5, C6
   Workplace Skills (See Appendix B): WP2, WP6
3. Apply human relationship skills.
   a. Use pro-active human relationship skills in the work-based learning program.
   Related Academic Topics (See Appendix A): C5, C6
   Workplace Skills (See Appendix B): WP3
4. Apply and practice positive work habits and responsibilities.
   a. Perform assignments to develop positive work habits and responsibilities.
   Related Academic Topics (See Appendix A): C5, C6
   Workplace Skills (See Appendix B): WP3
5. Work with instructor and employer to develop written occupational objectives to be accomplished.
   a. Perform written occupational objectives in the work-based learning program.
   Related Academic Topics (See Appendix A): C5, C6
   Workplace Skills (See Appendix B): WP6
6. Assess accomplishment of objectives.
   a. Prepare daily written assessment of accomplishment of objectives.

b. Present weekly written reports to instructor in activities performed and objectives accomplished.

Related Academic Topics (See Appendix A): C5, C6
Workplace Skills (See Appendix B): WP6

7. Utilize a set of written guidelines for the work-based learning program.
   a. Develop and follow a set of written guidelines for the work-based learning program.

Related Academic Topics (See Appendix A): C5, C6
Workplace Skills (See Appendix B): WP6

SECTION III:

RECOMMENDED TOOLS AND EQUIPMENT

RECOMMENDED TOOLS AND EQUIPMENT FOR POSTSECONDARY BRICK, BLOCK, AND STONEMASONRY

1. Brush, masonry (20)
2. Chalkline (4)
3. Eye protection and sterilization chest (w/20 pr. safety glasses) (1)
4. Grinder, pedestal (6") (1)
5. Hoe, mortar (2)
6. Hose, air (50') (2)
7. Hose, air (50') (2)
8. Joiner, sled block (10)
9. Jointer, rake bricklaying (10)
10. Jointer, concave bricklaying (10)
11. Level, masonry (48") (8)
12. Mixer, mortar (gas or electric powered) (1)
13. Mortar boards (20)
14. Mortar stands (20)
15. Rule, folding (6" spacing) (12)
16. Rule, folding (6' modular) (12)
17. Safety kit (OSHA approved) (1)
18. Saw, masonry (14" with blade) (1)
19. Scaffold, (4 sets)
20. Set, brick (16)
21. Shovel, round point (2)
22. Shovel, square point (2)
23. Square, framing w/rafter chart (6)
24. Tape, steel (50') (1)
25. Tape, steel (100') (1)
26. Tong, brick (6)
27. Toolbag (16)
28. Trowel, bricklaying (16)
29. Trowel, tuck point (16)
30. Wheelbarrow, 6 cu. ft. (3)
31. Wheelbarrow, brick (1)
32. Calculator (1)
33. Cart, AV (for TV-VCR) (1)
34. Computer w/operating software w/multimedia kit (1)
35. Printer, dot matrix (1)
36. TV-VCR (1)
37. Video out (Microcomputer to TV monitor) (1)

RECOMMENDED INSTRUCTIONAL AIDS

1. Calculator (1)
2. Cart, AV (for overhead projector) (1)
3. Cart, AV (for TV-VCR) (1)
4. Projector, overhead (1)
5. Software for Materials Estimation in Masonry (1)
6. TV-VCR (1)
7. Video out (Microcomputer to TV monitor) (1)

APPENDIX A:

RELATED ACADEMIC TOPICS

APPENDIX A

RELATED ACADEMIC TOPICS FOR COMMUNICATIONS

C1 Interpret written material.
C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
C3 Listen, comprehend, and take appropriate actions.
C4 Access, organize, and evaluate information.
C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

EXPANDED TOPICS FOR COMMUNICATIONS

TOPIC C1: Interpret written material.

C1.01 Read and follow complex written directions.
C1.02 Recognize common words and meanings associated with a variety of occupations.
C1.03 Adjust reading strategy to purpose and type of reading.
C1.04 Use sections of books and reference sources to obtain information.
C1.05 Compare information from multiple sources and check validity.
C1.06 Interpret items and abbreviations used in multiple forms.
C1.07 Interpret short notes, memos, and letters.
C1.08 Comprehend technical words and concepts.
C1.09 Use various reading techniques depending on purpose for reading.
C1.10 Find, read, understand, and use information from printed matter or electronic sources.

TOPIC C2: Interpret visual materials (maps, charts, graphs, tables, etc.).

C2.01 Use visuals in written and in oral presentations.
C2.02 Recognize visual cues to meaning (layout, typography, etc.).
C2.03 Interpret and apply information using visual materials.

TOPIC C3: Listen, comprehend, and take appropriate action.

C3.01 Identify and evaluate orally-presented messages according to purpose.
C3.02 Recognize barriers to effective listening.
C3.03 Recognize how voice inflection changes meaning.
C3.04 Identify speaker signals requiring a response and respond accordingly.
C3.05 Listen attentively and take accurate notes.
C3.06 Use telephone to receive information.

C3.07 Analyze and distinguish information from formal and informal oral presentations.

TOPIC C4: Access, organize, and evaluate information.

C4.01 Distinguish fact from opinion.
C4.02 Use various print and non-print sources for specialized information.
C4.03 Interpret and distinguish between literal and figurative meaning.
C4.04 Interpret written or oral communication in relation to context and writer's point of view.
C4.05 Use relevant sources to gather information for written or oral communication.

TOPIC C5: Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.

C5.01 Select appropriate words for communication needs.
C5.02 Use reading, writing, listening, and speaking skills to solve problems.
C5.03 Compose inquiries and requests.
C5.04 Write persuasive letters and memos.
C5.05 Edit written reports, letters, memos, and short notes for clarity, correct grammar, and effective sentences.
C5.06 Write logical and understandable statements, phrases, or sentences for filling out forms, for correspondence or reports.
C5.07 Write directions or summaries of processes, mechanisms, events, or concepts.
C5.08 Select and use appropriate formats for presenting reports.
C5.09 Convey information to audiences in writing.
C5.10 Compose technical reports and correspondence that meet accepted standards for written communications.

TOPIC C6: Communicate ideas and information using oral and written forms for a variety of audiences and purposes.

C6.01 Give complex oral instructions.
C6.02 Describe a business or industrial process/mechanism.
C6.03 Participate effectively in group discussions and decision making.
C6.04 Produce effective oral messages utilizing different media.
C6.05 Explore ideas orally with partners.
C6.06 Participate in conversations by volunteering information when appropriate and asking relevant questions when appropriate.
C6.07 Restate or paraphrase a conversation to confirm one's own understanding.
C6.08 Gather and provide information utilizing different media.

C6.09 Prepare and deliver persuasive, descriptive, and demonstrative oral presentations.

RELATED ACADEMIC TOPICS FOR MATHEMATICS

M1 Relate number relationships, number systems, and number theory.
M2 Explore patterns and functions.
M3 Explore algebraic concepts and processes.
M4 Explore the concepts of measurement.
M5 Explore the geometry of one-, two-, and three-dimensions.
M6 Explore concepts of statistics and probability in real world situations.
M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

EXPANDED TOPICS FOR MATHEMATICS

TOPIC M1: Relate number relationships, number systems, and number theory.

M1.01 Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real world and mathematical problem situations.
M1.02 Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.
M1.03 Understand and apply ratios, proportions, and percents in a wide variety of situations.
M1.04 Investigate relationships among fractions, decimals, and percents.
M1.05 Compute with whole numbers, fractions, decimals, integers, and rational numbers.
M1.06 Develop, analyze, and explain procedures for computation and techniques for estimations.
M1.07 Select and use an appropriate method for computing from among mental arithmetic, paper-and-pencil, calculator, and computer methods.
M1.08 Use computation, estimation, and proportions to solve problems.
M1.09 Use estimation to check the reasonableness of results.

TOPIC M2: Explore patterns and functions.

M2.01 Describe, extend, analyze, and create a wide variety of patterns.
M2.02 Describe and represent relationships with tables, graphs, and rules.
M2.03 Analyze functional relationships to explain how a change in one quantity results in a change in another.
M2.04 Use patterns and functions to represent and solve problems.
M2.05 Explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.

M2.06 Use a mathematical idea to further their understanding of other mathematical ideas.
M2.07 Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as art, music, and business.

TOPIC M3: Explore algebraic concepts and processes.

M3.01 Represent situations and explore the interrelationships of number patterns with tables, graphs, verbal rules, and equations.
M3.02 Analyze tables and graphs to identify properties and relationships and to interpret expressions and equations.
M3.03 Apply algebraic methods to solve a variety of real world and mathematical problems.

TOPIC M4: Explore the concepts of measurement.

M4.01 Estimate, make, and use measurements to describe and compare phenomena.
M4.02 Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.
M4.03 Extend understanding of the concepts of perimeter, area, volume, angle measure, capacity, and weight and mass.
M4.04 Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs.

TOPIC M5: Explore the geometry of one-, two-, and three-dimensions.

M5.01 Identify, describe, compare, and classify geometric figures.
M5.02 Visualize and represent geometric figures with special attention to developing spatial sense.
M5.03 Explore transformations of geometric figures.
M5.04 Understand and apply geometric properties and relationships.
M5.05 Classify figures in terms of congruence and similarity and apply these relationships.

TOPIC M6: Explore the concepts of statistics and probability in real world situations.

M6.01 Systematically collect, organize, and describe data.
M6.02 Construct, read, and interpret tables, charts, and graphs.
M6.03 Develop an appreciation for statistical methods as powerful means for decision making.
M6.04 Make predictions that are based on exponential or theoretical probabilities.

M6.05 Develop an appreciation for the pervasive use of probability in the real world.

TOPIC M7: Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

M7.01 Use computers and/or calculators to process information for all mathematical situations.
M7.02 Use problem-solving approaches to investigate and understand mathematical content.
M7.03 Formulate problems from situations within and outside mathematics.
M7.04 Generalize solutions and strategies to new problem situations.

RELATED ACADEMIC TOPICS FOR SCIENCE

S1 Explain the Anatomy and Physiology of the human body.
S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
S3 Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.
S4 Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.
S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
S7 Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance, population genetics, the structure and function of DNA, and current applications of DNA technology.
S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

EXPANDED TOPICS FOR SCIENCE

TOPIC S1: Explain the Anatomy and Physiology of the human body.

S1.01 Recognize common terminology and meanings.
S1.02 Explore the relationship of the cell to more complex systems within the body.

S1.03 Summarize the functional anatomy of all the major body systems.
S1.04 Relate the physiology of the major body systems to its corresponding anatomy.
S1.05 Compare and contrast disease transmission and treatment within each organ system.
S1.06 Explore the usage of medical technology as related to human organs and organ systems.
S1.07 Explain the chemical composition of body tissue.

TOPIC S2: Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.

S2.01 Identify the major types and structures of plants, viruses, monera, algae protista, and fungi.
S2.02 Explain sexual and asexual reproduction.
S2.03 Describe the ecological importance of plants as related to the environment.
S2.04 Analyze the physical, chemical, and behavioral processes of a plant.

TOPIC S3: Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.

S3.01 Explain the morphology, anatomy, and physiology of animals.
S3.02 Describe the characteristics, behaviors, and habitats of selected animals.

TOPIC S4: Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.

S4.01 Examine minerals and their identification, products of the rock cycle, byproducts of weathering, and the effects of erosion.
S4.02 Relate the Hydrologic Cycle to include groundwater its zones, movement, and composition; surface water systems, deposits, and runoff.
S4.03 Consider the effects of weather and climate on the environment.
S4.04 Examine the composition of seawater; wave, tides, and currents; organisms, environment, and production of food; energy, food and mineral resources of the oceans.

TOPIC S5: Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.

S5.01 Examine the science of chemistry to include the nature of matter, symbols, formulas and nomenclature, and chemical equations.

S5.02 Identify chemical reactions including precipitation, acids-bases, and reduction-oxidation.
S5.03 Explore the fundamentals of chemical bonding and principles of equilibrium.
S5.04 Relate the behavior of gases.
S5.05 Investigate the structure, reactions, and uses of organic compounds; and investigate nuclear chemistry and radiochemistry.

TOPIC S6: Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.

S6.01 Examine fundamentals of motion of physical bodies and physical dynamics.
S6.02 Explore the concepts and relationships among work, power, and energy.
S6.03 Explore principles, characteristics, and properties of electricity, magnetism, light energy, thermal energy, and wave energy.
S6.04 Identify principles of modern physics related to nuclear physics.

TOPIC S7: Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance; population genetics, the structure and function of DNA, and current applications of DNA technology.

S7.01 Examine principles, techniques, and patterns of traits and inheritance in organisms.
S7.02 Apply the concept of population genetics to both microbial and multicellular organism.
S7.03 Identify the structure and function of DNA and the uses of DNA technology in science, industry, and society.

TOPIC S8: Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

S8.01 Apply the components of scientific processes and methods in classroom and laboratory investigations.
S8.02 Observe and practice safe procedures in the classroom and laboratory.
S8.03 Demonstrate proper use and care for scientific equipment.
S8.04 Investigate science careers and advances in technology.
S8.05 Communicate results of scientific investigations in oral, written, and graphic form.

APPENDIX B:

WORKPLACE SKILLS

APPENDIX B
WORKPLACE SKILLS FOR THE 21ST CENTURY

WP1 Allocates resources (time, money, materials and facilities, and human resources).

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with the culturally diverse.

WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.

WP5 Selects, applies, and maintains/troubleshoots technology.

WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

APPENDIX C:

STUDENT COMPETENCY PROFILE

STUDENT COMPETENCY PROFILE

Student: _____

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

Brick and Block Laying (BBV 1115)

_____ 1. Explain procedures for layout and construction of a brick/block wall.
_____ 2. Perform procedures for layout and construction of a brick/block wall.

Masonry Construction (BBV 1215)

_____ 1. Identify brick, block, and stone materials and their applications.
_____ 2. Plan and construct a concrete foundation.
_____ 3. Lay out a brick wall to specifications.
_____ 4. Lay out a block wall to specifications.
_____ 5. Plan and construct a reinforced wall.

Masonry Math, Estimating, and Blueprint Reading (BBV 1223)

_____ 1. Demonstrate addition, substraction, division, and multiplication with whole numbers, fractions, and decimal for the masonry trade.
_____ 2. Describe the symbols and abbreviations used on blueprints for masonry.
_____ 3. Estimate materials for a masonry job using manual procedures and/or computer equipment with software.

Tools, Equipment, and Safety (BBV 1313)

_____ 1. Explain safe work practices on the masonry job.
_____ 2. Explain vocational student organizations and how they relate to and support the instructional program.
_____ 3. Demonstrate the ability to identify and use the tools and equipment.
_____ 4. Demonstrate the ability to care for the tools and equipment.

Advanced Block Laying (BBV 1425)

_____ 1. Explain procedures for layout and construction of block columns, piers, and various walls.
_____ 2. Lay out and construct columns, piers, and various walls.

Advanced Bricklaying (BBV 1525)

_____ 1. Explain procedures for layout and construction of columns, piers, and various walls.
_____ 2. Lay out and construct columns, piers, and various walls.

Chimney and Fireplace Construction (BBV 1623)

_____ 1. Describe procedures to lay out and construct fireplaces and chimneys.
_____ 2. Apply procedures to lay out and construct fireplaces and chimneys.

Steps, Arches, and Brick Floors (BBV 1723)

_____ 1. Explain procedures to lay out and construct steps, arches, and heater flues.
_____ 2. Apply procedures to lay out and construct steps, arches, and heater flues.

Special Problem in Brick, Block, and Stonemasonry (BBV 191(1-3))

_____ 1. Prepare a written agreement.
_____ 2. Prepare a written report of activities.
_____ 3. Follow written guidelines for special problems.

Work-Based Learning in Brick, Block, and Stonemasonry (BBV 192(1-6))

_____ 1. Prepare a training agreement.
_____ 2. Prepare and submit written reports of the work-based learning.
_____ 3. Follow written guidelines for work-based learning.